Relationships between Status Perception and Pro-Environmental Behaviors

Matheus De Nardo

Honors Research Thesis

Advisor: Dr. Jeremy Brooks

School of Environment and Natural Resources

The Ohio State University

2014

ABSTRACT:

This study explores the perceived social status associated with a variety of environmentally-friendly behaviors among individuals in groups who differ in their environmental orientation. Individuals in both the environmental and non-environmental group included in the study noted two major factors influencing whether or not a behavior is associated with high status or low status, which were (i) the motivation behind a behavior and (ii) observability. Furthermore, only six of nineteen behaviors showed significant differences in average status ratings between the two groups. Contrary to expectations, the environmental group provided higher status ratings for more costly, consumptive-intensive behaviors (i.e. *buying a fuel efficient car, installing solar panels, and installing attic/wall insulation*), while the non-environmental sample did so for more consumption-reducing behaviors (i.e. *eating vegetarian food, composting, and riding the bus instead of a car*). These results highlight the importance of contextual information in perceiving status related to environmentally-friendly behaviors. In addition, the results provide insights into subtle differences in how different social groups view environmental behaviors which has implications for whether and why these behaviors might be adopted by individuals in both groups.

INTRODUCTION

Given the environmental impacts related to pollution, natural resource exploitation, and overconsumption, researchers have recognized the increasing importance of promoting environmentally friendly behavior in the general population. However, effectively fostering environmentally-friendly behavior requires an understanding of the underlying motives contributing to overconsumption as well as those that contribute to conservation and sustainable consumption. Many of these motives have been identified and incorporated into different strategies for motivating environmentally-friendly behavior; including strategies derived from

environmental concern perspectives and economic, rational choice perspectives. However, one area that has begun to receive more attention is the relationship between social status and sustainable consumption. Previous studies have indicated that some environmentally-friendly behaviors tend to be perceived as high status while other behaviors are perceived as low status (Griskevicius et al 2010, Sadalla and Krull 1995). This association with high or low status is important as both theoretical insights and empirical research suggest that the behaviors of higher status individuals are more likely to be copied than the behaviors of lower status individuals. Thus, environmentally-friendly behaviors that are perceived as low status are less likely to spread through a community or a population. Importantly, few studies have explored whether and to what degree the perception of environmentally-friendly behaviors, and how they relate to social status, depends upon the social groups to which one belongs. If one group considers a behavior high status, but another considers the behavior low status, then different incentives may be required for each group to motivate the behavior.

In this study, I explore which types of environmentally-friendly behaviors are associated with high status and low status and whether or not this differs among social groups. Determining how individuals and social groups characterize environmentally-friendly behaviors and how they conceptualize the relationship between these behaviors and social status will provide insights into one of the social obstacles to reducing consumption. The findings from this study will allow for a more nuanced understanding of the relationship between environmentally-friendly behavior and status, thereby contributing to the design of improved behavior-change strategies.

BACKGROUND

Two of the most common approaches to motivating environmentally-friendly behavior are through economic incentives and by increasing awareness or knowledge of the environmental impacts of our actions. An environmental concern perspective posits that humans intrinsically

care for the wellbeing of the Earth and its inhabitants. According to this perspective, promoting environmentally-friendly behavior involves better informing the population about the degraded state of environment. With more knowledge of the impacts of their actions, people will change their behavior based on their concern for the environment (Owens, 2000).

Conversely, the rational choice, economic perspective presumes that environmentally-friendly behavior is driven by the desire to minimize expenditures or economic cost. Thus, providing consumers with financial incentives and less expensive and more efficient products will motivate people to go green (Geller, 1989). Although economic factors and environmental concern can certainly foster environmentally-friendly behavior in certain individuals and in some contexts, these may not always be the most effective strategies. Instead, another perspective suggests that social factors, such as norms, values, attitudes, knowledge, and feelings of responsibility, may also be effective at promoting conservation and green consumption (Guagnano, 1995; Hines et. al, 1987; Kaiser, 1999; Karp, 1996; Stern et. al, 1995). In particular, one social factor that can affect decision-making and consumption patterns is the pursuit of social status (Bird & Smith, 2005; Griskevicius, Tybur, & Van, 2010; Henrich & Gil-White, 2001; Willer, 2009).

Status is defined as an individual's relative standing in a group based on respect, honor, and deference (Willer, 2009). Status is an important driving force for humans since high status individuals enjoy greater social and material benefits. Research shows that high status individuals are evaluated more highly, deferred to more, and allocated more resources (Henrich & Gil-White, 2001). According to costly signaling theory, status is achieved by engaging in behaviors that communicate one's ability to absorb costs. Specifically, these behaviors are superficial cues that, when recognized by the observer, signal underlying traits that are difficult

to identify directly (Bird & Smith, 2005).

One way to communicate such a signal is through consumption (Griskevicius et al., 2010). For example, conspicuous consumption of luxury products communicates the ability to afford costly goods. In societies where high incomes and financial abilities are valued, consuming luxury products signals wealth and thus is a means of acquiring status. Furthermore, since status is defined as relative standing, we are pressured to compete with other individuals' consumption patterns so as to maintain or increase our status. For this reason, conspicuous acts of consumption can lead to overconsumption in a population. In fact, much of the writing on the link between status and consumption has dealt with conspicuous consumption and the environmental and social impacts of overconsumption.

However, apart from displays of consumption, status can also be achieved by engaging in cooperative and prosocial behavior (Griskevicius et al., 2010; Henrich & Gil-White, 2001; Vugt et. al, 2007; Willer, 2009). Competitive altruism is the process of attaining status by trying to be seen as relatively more altruistic through engaging in prosocial and cooperative behavior (Vugt et. al, 2007). This phenomenon has been prevalent across diverse cultures and historical periods, including in today's society (Griskevicius et al., 2010). However, from an evolutionary perspective, performing costly, prosocial acts with no guarantee that others will do the same presents a theoretical mystery (Griskevicius et al., 2010). It seems self-defeating to give away hard-won resources or to sacrifice one's own well-being for the good of others, especially those to which we are unrelated.

Costly signaling theory provides a possible explanation for such behavior by suggesting that altruistic acts serve as a communicative symbol that indicates one's ability to incur costs. In other words, an altruistic act signals that one possesses enough time, energy, and/or other

valuable resources to be capable of affording to give them away without negatively affecting fitness (Griskevicius et al., 2010). Altruistic acts can also communicate an individual's willingness to incur costs for others' wellbeing, also known as prosociality (Griskevicius et al., 2010; Henrich & Gil-White, 2001; Vugt et. al, 2007; Willard, 2009). Prosocial individuals are viewed as more trustworthy, more desirable as friends, allies, and romantic partners, and more likely to be elected as leaders (Henrich, 2009; Willer, 2009). Furthermore, experimental studies found that participants perceived higher contributors to public goods as more prosocial and of higher status than low contributors (Willer, 2009). Given these social benefits, costly signaling theory explains phenomena like competitive altruism, whereby individuals visibly engage in altruistic and prosocial behaviors. Because environmentally-friendly behavior often involves bearing short-term, personal costs that produce long-term diffuse benefits, it is an example of prosocial behavior.

Recent studies exploring the relationship between self-sacrifice and status, suggest that individuals might participate in costly prosocial behavior, such as environmental conservation, when they are motivated to attain high status. Indeed, one study has shown that activating status motives leads people to choose more environmentally-friend, "green" products over more luxurious, equally priced products (Griskevicius et al.,2010). Contrastingly, other studies have found that some environmentally-friendly behaviors, such as line-drying clothes and taking the bus rather than a car, are associated with low status (Sadalla & Krull, 1995). This discrepancy illustrates that the status associated with environmentally-friendly behaviors could be function of multiple factors, such as 1) the strength of collective benefits provided (reduced environmental impact), 2) relative costs to the individual, and, perhaps most importantly for this study, 3) the values of those observing the behavior (Willer, 2009).

While there has been a large amount of research on the first two factors, there has been far less research on the importance of those who observe a behavior and, therefore, of the importance one's social group. This study asks whether one's social group - which can affect one's values and beliefs about the environment, environmental impacts, and sustainability – affects the perceived status of various environmentally-friendly behaviors. If perceptions of prosocial behavior depend on the values of the group to which one belongs and with which one most frequently interacts, *and* if individuals and groups differ in the extent to which they favor environmentally-friendly behavior, *then* the effectiveness of a self-sacrifice strategy to achieve status may vary across groups. According to Willer (2009:39), "the extent to which contributions to a group lead to greater respect likely depends on the cultural beliefs shared by group members. Specifically, the more group motivation is considered a meritorious trait within a given culture, the more contributions will tend to earn an individual improved status standing among groups within, or influenced by, that culture." Therefore, it is important to consider not only the communicative signal, but the receiver of the signal as well (Cronk, 2005). The psychology of the receiver - including what signals receivers find easy to detect, distinguish, and recall - have a major effect on signal design. With time, signals can evolve to be more intricate and effective. For example, Rowe (1999) mentioned the use of multicomponent signals, which can be sent in multiple ways in order to increase the chances that a message is received. As a result, it is worth noting that costly signaling theory suggests that status is associated with prosociality, not environmentalism per se. Accordingly, it is possible that certain cultures or subgroups value proself (e.g. individual achievement and self-actualization) over prosocial behavior (e.g. self-sacrifice). More broadly, this study will help assess potential variation in how different social groups and the general public conceptualize the relationship between environmentally-friendly

behavior and status.

HYPOTHESES

To further investigate this topic, I sampled both environmentally-oriented and non-environmentally-oriented participants. I expect that the non-environmental sample will assign higher status to more economically costly (more expensive) behaviors that signal wealth. For instance, behaviors such as installing solar panels and buying a fuel efficient car involve a greater up-front expenditure that signals one's ability to afford such a cost even if it results in long-term savings. This hypothesis is derived from the assumption that individuals that work in the business world are more aware of wealth as a social signal and more likely to interact with individuals who are conscious of wealth as an indicator of status.

Conversely, I expect the environmental sample will be more likely to equate higher status with behaviors that involve a bigger personal sacrifice in terms of time, comfort, commitment, or physical energy. For instance, repairing clothes rather than buying new ones may require more time, effort and skill and turning down the heat may lead to a loss of comfort. This hypothesis is derived from the assumption that people affiliated with environmental organizations are more likely to be attuned to the environmental benefits of particular behaviors, and to value the prosocial aspects of environmentally-friendly behaviors that involve more direct, non-monetary forms of sacrifice. Further, some authors (Owen, 2012) consider these aforementioned actions, which require behavioral change or additional non-monetary costs, to be more important for long-term sustainability than behaviors that focus on more efficient use of resources. Thus, environmentally-oriented individuals may recognize the additional long-term environmental benefits of such behaviors.

METHODS

This study focused on 19 behaviors that were chosen to represent a wide-range of

environmentally-friendly actions in a number of domains (at home, transportation, alone, with others, etc.) (see Table 1). Perceptions of the 19 behaviors were explored through face-to-face interaction with subjects using Q methodology and semi-structured interviews.

Table 1. List of Q-sort Behaviors

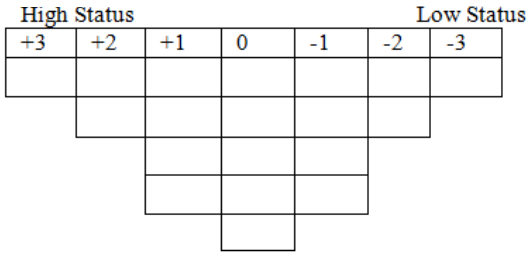
Behavior	Abbreviation
▪ repair clothes instead of buying new ones	▪ repair clothes (B1)
▪ wash clothes at low temperature	▪ low temp wash (B2)
▪ turn down heating when at home during the day	▪ turn heat down (B3)
▪ take shorter showers	▪ short showers (B4)
▪ put sheets of plastic insulation on windows	▪ insulate windows (B5)
▪ install attic or wall insulation	▪ insulate attic/wall (B6)
▪ install solar panels on roof	▪ solar panels (B7)
▪ purchase renewable energy from you energy provider	▪ renewable energy (B8)
▪ buy fuel efficient car	▪ efficient car (B9)
▪ use bicycle instead of car for short distance journeys	▪ bike not car (B10)
▪ participate in public protests about environmental issues	▪ public protest (B11)
▪ buy locally produced food	▪ local food (B12)
▪ eat vegetarian food instead of meet	▪ vegetarian (B13)
▪ install energy efficient light bulbs	▪ efficient light (B14)
▪ compost kitchen waste	▪ compost (B15)
▪ donate clothes no longer being used to charity	▪ donate clothes (B16)
▪ reuse bags when shopping	▪ reuse bags (B17)
▪ maintain car tires at correct pressure	▪ tire pressure (B18)
▪ use bus instead of car for short journeys	▪ bus not car (B19)

The primary method of data collection for this analysis is based on Q methodology. Q methodology is a research method that permits the study of subjective perceptions in a discourse on a specific topic (Goldman, 1999). It views the participant's perspective and understanding as being central to its investigative procedures.

In Q methodology, subjects rank a series of behaviors along a given dimension. With this approach, the meaning of a dimension is elicited by ordering behaviors relative to one another along a bipolar scale defined by the researcher. For this study, participants placed cards representing behaviors in boxes based on whether they perceived the behavior to be associated

with a high status or low status (see Figure 1). The cards were placed on a scale ranging from 3 to -3, with 0 serving as a neutral score. A score of -3 is considered to be most associated with low status, while a score of 3 is most associated with high status. In general, scores of -2 and -3 relate to low status and scores of 2 and 3 relate to high status. This method provided important quantitative and qualitative data as subjects were encouraged to "think out loud" throughout the process of placing behavior cards in particular boxes in the Q-sort board.

Figure 1. Q-sort sheet



In addition to analyzing the status scores (-3 to 3) that were assigned to behaviors by each respondent, the Q-sort process also produced qualitative data that provided important insights into each respondent's decision-making process. At various stages of the Q-sorting process, participants were asked a total of five questions (see Appendix) that elicited responses concerning how and why participants associate different behaviors with high and low status. Before the participants were presented with the behavior cards, they were asked to explain how they define high status and list any attributes related to high status behaviors. Next, participants were provided with the behavior cards and asked to sort them into three preliminary piles (e.g. high status, low status, and status-neutral) that correspond to the bipolar high status and low status scale. After having sorted the cards into three piles, participants were asked whether they had any additional insights about how they perceive and define "status" as a result of this process. If so, any changes were recorded. Following this, the subjects placed the cards on the Q-sort chart. The final three questions concerned the participants' reasons for placing particular behaviors on the extreme ends of the bipolar scale (scores of – 3, -2, 2, and 3) as well as which behaviors participants had the most difficulty placing and why.

Four researchers collected the data beginning in Summer 2013 and ending in Winter 2014 with the majority having been collected by the author. All researchers were trained during a visit to OSU by an expert in Q-sort methodology who pilot tested the research protocol as part of a separate study.

SAMPLE

The total sample consisted of 62 subjects from central Ohio. Half of the sample (N=31) was affiliated with environmental organizations (e.g. The Nature Conservancy, Simply Living, etc.) and the other half (N=31) with business-affiliated organizations or companies (AEP, Nationwide, Huntington Bank, GOJO, etc.). Email lists from relevant organizations and public advertisements were used as the primary means of reaching potential participants. Additionally, a limited amount of snowball sampling (i.e. past participants would refer us to other individuals) was used to meet our data collection goals. An honorarium of $15 was given to each participant as an incentive to participate in the study.

ANALYSIS

The data collected from the five open-ended questions was analyzed with basic qualitative content analyses methods, such as codifying response types and calculating the number of times they were mentioned. Further analysis included descriptive/quantitative statistics and statistical tests to identify any statistically significant differences between the two groups regarding perceptions of status associated with each behavior. Specifically, averages for the placement of all behaviors along the high status - low status gradient were calculated and t-tests were used to determine significant differences between the two sample groups. Moreover, percentages were calculated for each behavior based on the number of times the behaviors were placed as an indicator of highest status (score of 3), lowest status (score of -3), high status (scores of 2 or 3), low status (scores of-2 or 3), neutral (score of 0), or mentioned as hard to

place. Since each participant could only score each behavior once, the number of times a behavior was given a certain score also represents the proportion of respondents who gave it that score. Lastly, in order to test for differences in environmental orientation, participants were asked to what extent they agree or disagree (1 = strongly disagree; 7 = strongly agree) with the following two statements: "I have a responsibility to protect the environment" and "I am concerned about the health of the environment". Answer options included strongly disagree, somewhat disagree, disagree, neutral, somewhat agree, agree, strongly agree. The scores for these questions were averaged and tested for statistical significance.

In addition, participants' responses from questions 1 and 2 of the Q-sorting process, regarding definitions of high status, were codified in order to understand what qualities and charactertiscs each sample group associated with high status.

The coding process began with a preliminary assessment of responses from the first 12 participants of each sample group. Specifically, these responses were examined for reoccuring key words and phrases that communicated similar reasoning in order to observe general themes in the data. Later, descriptive categories were created based on these general themes.

Next, the responses from all 62 participants were examined and placed in the appropriate descriptive categories. For example, responses that included "money", "financial status", or "high disposable income" were placed into the wealth category since they conveyed similar ideas of high financial assets (see Table 2). New categories were created if novel themes were observed. Following this, responses from all 62 participants were reviewed and appropriately categorized once again to check for consistency. Finally, the responses in each category were counted and the eight categories with the most responses were recorded and compared between the two sample groups (see Table 3).

RESULTS

Descriptive Statistics: Derived Indicators Of High Status

The eight categories outlining participant-derived indicators of high status include: (1) wealth, (2) knowledge/education, (3) luxury items, (4) professional status, (5) freedom of choice, (6) engaging in observable behavior (i.e. making a statement), (7) influence, and (8) environmentally consciousness.

Table 2. Key Words Used To Describe or Define High Status in Qualitative Data Coding

Category	Key Words
Wealth	money, financial status, high income
Knowledge/Education	Well-educated, knowledgeable, intelligent
Luxury Items	material possessions, luxuries, materialistic
Professional Status	career title, type of job, professional rank
Freedom of Choice	not making decisions based on need, options, choice
Engaging in Observable Behavior	desire to be seen, make a statement, want behaviors to be known, observable/visible
Influence	leadership, power, position of authority
Environmental Consciousness	aware of environmental issues, environmental awareness, environmental mindset, environmentally friendly

Wealth and knowledge/education are mentioned as being components of "status" in both groups. However, there are some differences in how respondents from each group describe or define "status". For example, nearly half of the non-environmental group (46%) reference professional status, compared to only 13% of participants from the environmental group. Furthermore, an even greater difference between sample group responses can be found in the proportion of participants who communicated "engagement in observable behavior" and "influence" as attributes of high status. Overall, 42% of the non-environmental group note engagement in observable behavior and 32% note influence, while these respective percentages are both 6% for the environmental group. Lastly, more environmental participants specifically mention environmental consciousness (19%) as an indicator of high status than non-environmental participants (3%).

Table 3. Number and Percentage of Participant-Derived High Status Indicators

Indicators	**Percentage of Participants**		
	Environmental N = 31	Non-Environmental N = 31	Total N = 62
Wealth	84% (26)	97% (30)	90% (56)
Knowledge/Education	45% (14)	48% (15)	47% (29)
Luxury Items	26% (8)	32% (10)	29% (18)
Professional Status	13% (4)	45% (14)	29% (18)
Freedom of Choice	23% (7)	32% (10)	27% (17)
Engaging in Observable Behavior	6% (2)	42% (13)	24% (15)
Influence	6% (2)	32% (10)	19% (12)
Environmental Consciousness	19%(6)	3% (1)	11% (7)

Note: Number of respondents is shown in parenthesies

With regards to respondents' environmental orientation, there is a statistically significant difference between both groups regarding the extent they think they have a responsibility to protect the environment and their personal concerned about the health of the environment. Although, both groups show a high level of responsibility and concern for the environment and its protection, as expected, the environmental group provides significantly higher averages. Specifically, the environmental group shows significantly greater feelings of responsibility (6.7 out of 7) for the protection of the environment than the non-environmental group (5.9 out of 7). This holds true for feelings of concern for the environment as well (6.7 environmental; 6.1 non-environmental).

Q-SORT

After examining how participants define high status, I explored which environmentally-friendly behaviors respondents think are most associated with high and low status (see Table 4 and Table 5).

Highest Status (score of 3)*: Install solar panels* is the highest ranked behavior across both groups with sixty-one percent (N =39) of respondents considering it to be most associated with high status. This result holds for each subsample as approximately three-fourths (71%, N=22) of

the environmental participants and over half (55%, N=17) of the non-environmental participants rank *install solar panels* as most associated with high status.

High Status (score of 2 or 3): Broadening to include the top three behaviors at the higher end of the scale, we see that environmentally-oriented and non-environmentally-oriented respondents rate behaviors similarly. Both groups overwhelmingly have *install solar panels* in the top three behaviors most associated with higher status. Ninety-seven percent of environmental (N=30) and 71% (N= 22) of non–environmental respondents rate *install solar panels* as a 2 or 3 on the q-sort scale. The next two behaviors most commonly placed in the top three for high status differ between groups. For the environmental group it's *buy a fuel efficient car* (71%, N=22). For the non-environmental group it's *purchase renewable energy from you energy provider* (35%, N=10). The third behavior most associated with high status is *buy locally produced food* for the environmental group (48%, N=15) and *buy a fuel efficient car* for the non-environmental group (35%, N=9).

Lowest Status (score of -3): *Repair clothes instead of buying new ones* is the behavior most associated with low status across groups (total: 34%, N=22). Just over one-third (35%, N=11 for each group) of participants from each group rate repairing clothes as most associated with low status.

Low Status (score of -2 or -3): Expanding to include the top three behaviors at the lower end of the scale, both groups individually rate *repair clothes* (74% environmental, N=23; 81%, N=25 non-environmental) as most associated with low status and also rank *insulate windows* (65% environmental, N=20; 48% non-environmental, N=15) among the three most associated with low status. The third behavior most frequently associated with low status differs between sample groups. For the environmental respondents it's *use the bus instead of a car for short journeys*

(61%, N=19) and for the non-environmental respondents it's *take shorter showers* 35%, N=11).

Neutral (score of 0) and Difficult to Place: The behaviors most often placed as neutral differ among environmental and non-environmental group. The environmental group rates *eat vegetarian food instead of meat* as the most status-neutral behavior (65%, N=20). While the non-environmental group rates *maintaining car tires at correct pressure* as the most neutral behavior (58%, N=18). Lastly, both sample groups mention *participate in public protests about environmental issues* and *eating vegetarian food* as the two most difficult to place behaviors.

AVERAGE Q-SORT SCORES

Out of 19 behaviors, there is a significant difference in the average rating between groups for only 6 behaviors (see Table 4). The averages of three of these behaviors (*install attic/wall insulation*, *install solar panels*, and *buy a fuel-efficient car*) is higher in the environmental group, while the other three (*eat vegetarian food instead of meat*, *compost kitchen waste*, and *use the bus instead of a car for short journeys*) is higher for the non-environmental group (see Table 1 for list of all 19 behaviors).

Significantly Higher Averages: Environmental Sample

Mean scores for the environmental respondents are significantly higher than for non-environmental respondents for the following behaviors: install attic/wall insulation, install solar panels, and buy a fuel-efficient car. Thus, environmental participants deem these behaviors to be more related to high status than non-environmental participants. Additionally, only the scoring for install attic/wall insulation exhibits a sign difference (i.e. positive or negative) between groups. Specifically, the environmental sample gives install attic/wall insulation a positive score of 0.48, indicating slightly high status, while the non-environmental gives it a negative score of -0.19, indicating slightly low status. This is not the case for install solar panels (environmental 2.13, non-environmental 2.68) or buy a fuel-efficient car (environmental 0.94, non-

environmental 1.65); however both groups rank these behaviors considerably higher than installing attic/wall insulation.

The total average score for install attic/wall insulation is 0.15, with a score of -0.19 by the non-environmental sample and a significantly higher score of 0.48 by the environmental sample. A higher percentage of non-environmental participants (13%, N=4) rate install attic/wall insulation as low status (score of -2 or -3) compared to environmental groups (0%, N=0). In fact, no environmental participants score this behavior below a -1 (see Table 5).

Table 4. Average Scores for Each Behavior

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19
Env	-2.00	-0.71	-0.71	-0.74	-1.87	**0.48**	**2.68**	1.26	**1.65**	-0.45	0.39	1.45	**0.39**	0.23	**-0.03**	0.35	-0.06	-0.55	**-1.71**
Non-Env	-2.03	-0.87	-0.61	-1.23	-1.55	**-0.19**	**2.13**	1.23	**0.94**	-0.13	0.74	1.16	**0.81**	0.16	**0.45**	0.32	-0.03	-0.35	**-0.87**
Total	-2.02	-0.79	-0.66	-0.98	-1.71	0.15	2.40	1.24	1.29	-0.29	0.56	1.31	0.60	0.19	0.21	0.34	-0.05	-0.45	-1.29

Note: bold values are statistically significant at $p < 0.05$. Behavior numbers can be matched to the behavior names listed in Table 1.

Table 5. Q-Sort Results

		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19
Highest Status (3)	Env	-	-	-	-	-	-	71%	6%	6%	-	3%	13%	-	-	-	-	-	-	-
	Non-Env	-	-	-	-	-	3%	55%	10%	6%	-	10%	13%	3%	-	3%	3%	-	-	-
	Total	-	-	-	-	-	2%	61%	8%	6%	-	6%	13%	2%	-	2%	2%	-	-	-
Lowest Status (-3)	Env	35%	3%	3%	3%	26%	-	-	-	-	3%	-	-	-	3%	3%	-	-	3%	16%
	Non-Env	35%	3%	3%	13%	29%	-	-	-	-	-	-	-	3%	-	-	3%	3%	-	6%
	Total	34%	3%	3%	8%	27%	-	-	-	-	2%	-	-	2%	2%	2%	2%	2%	2%	11%
High Status (2, 3)	Env	-	-	-	-	-	10%	97%	45%	71%	-	10%	48%	3%	3%	6%	6%	-	-	-
	Non-Env	3%	-	10%	-	-	10%	71%	35%	32%	6%	32%	26%	26%	3%	13%	19%	6%	3%	3%
	Total	2%	-	5%	-	-	9%	81%	39%	50%	3%	20%	36%	14%	3%	9%	13%	3%	2%	2%
Low Status (-2 ,-3)	Env	74%	10%	23%	16%	65%	-	-	-	-	16%	3%	-	-	6%	3%	3%	-	13%	61%
	Non-Env	81%	32%	16%	35%	48%	13%	-	-	-	6%	3%	3%	3%	3%	-	6%	10%	10%	29%
	Total	75%	20%	19%	25%	55%	6%	-	-	-	11%	3%	2%	2%	5%	2%	5%	5%	11%	44%
Neutral	Env	10%	29%	16%	39%	3%	35%	-	6%	13%	23%	45%	10%	65%	39%	52%	35%	42%	35%	6%
	Non-Env	-	35%	16%	13%	3%	23%	6%	10%	26%	42%	32%	13%	35%	52%	32%	35%	32%	58%	32%
	Total	5%	31%	16%	25%	3%	28%	3%	8%	19%	31%	38%	11%	48%	44%	41%	34%	36%	45%	19%
Hard to Place	Env	10%	23%	10%	13%	3%	10%	-	-	6%	13%	29%	10%	26%	13%	23%	3%	16%	3%	3%
	Non-Env	3%	6%	6%	3%	3%	3%	6%	3%	-	6%	19%	3%	23%	3%	3%	13%	19%	10%	3%
	Total	6%	15%	8%	8%	3%	6%	3%	2%	3%	10%	24%	6%	13%	8%	13%	8%	18%	6%	3%

Note: bold values indicate significant differences between groups at $p < 0.05$. Behavior numbers can be matched to the behavior names listed in Table 1.

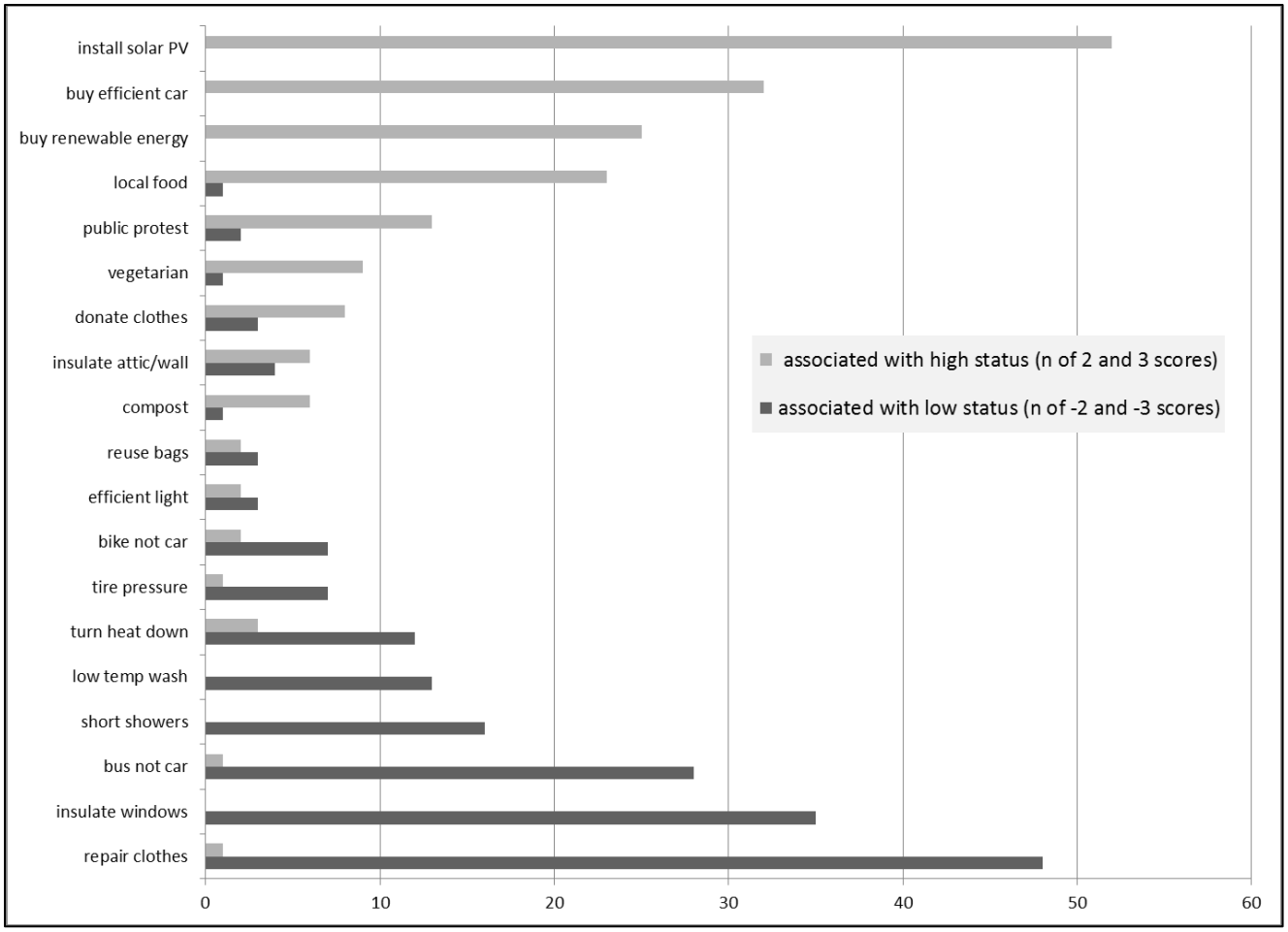


Figure 2. Full Sample Q-Sort Counts for High Status and Low Status Scores

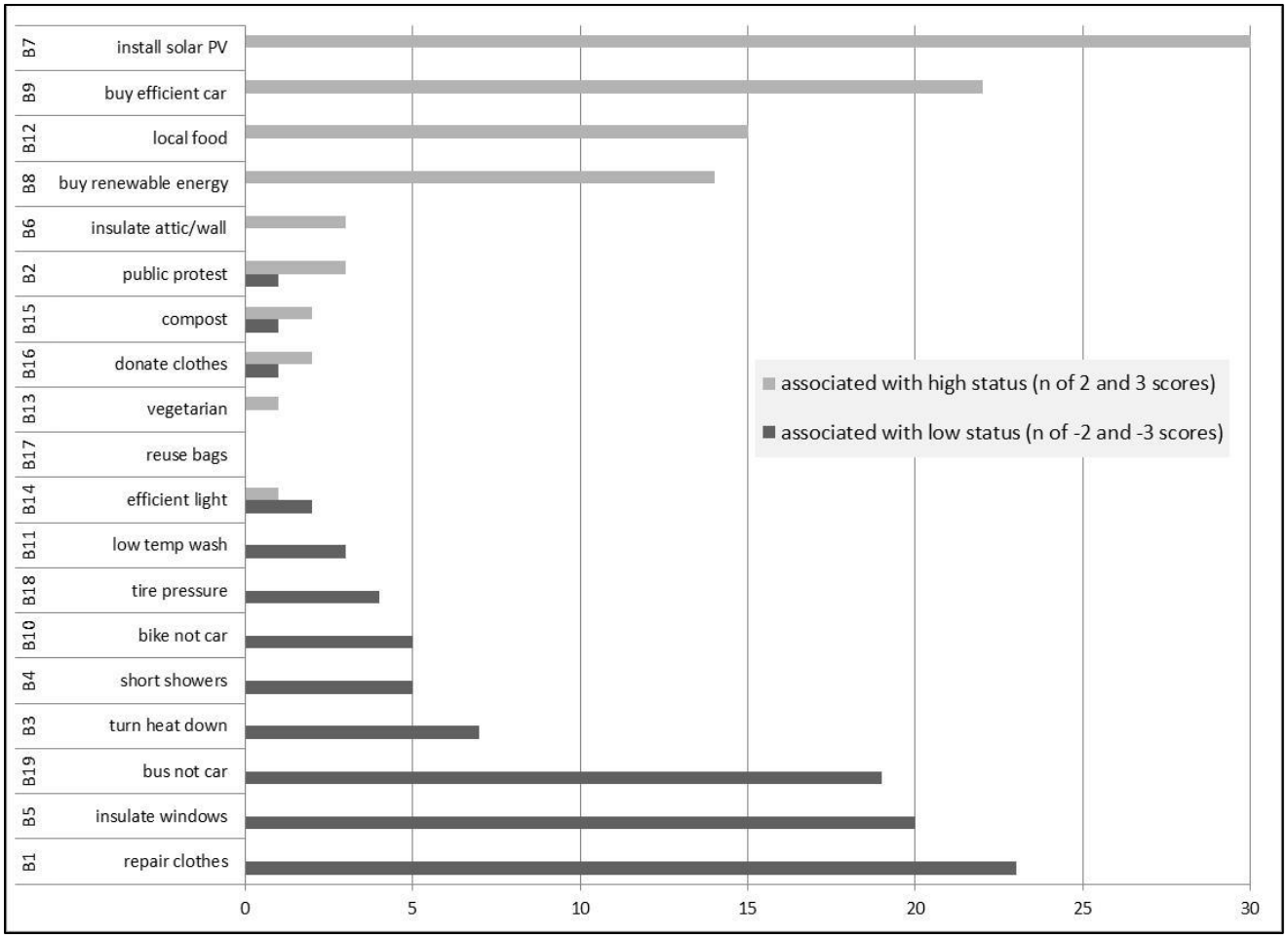


Figure 3. Environmental Sample Q-Sort Counts for High Status and Low Status Scores

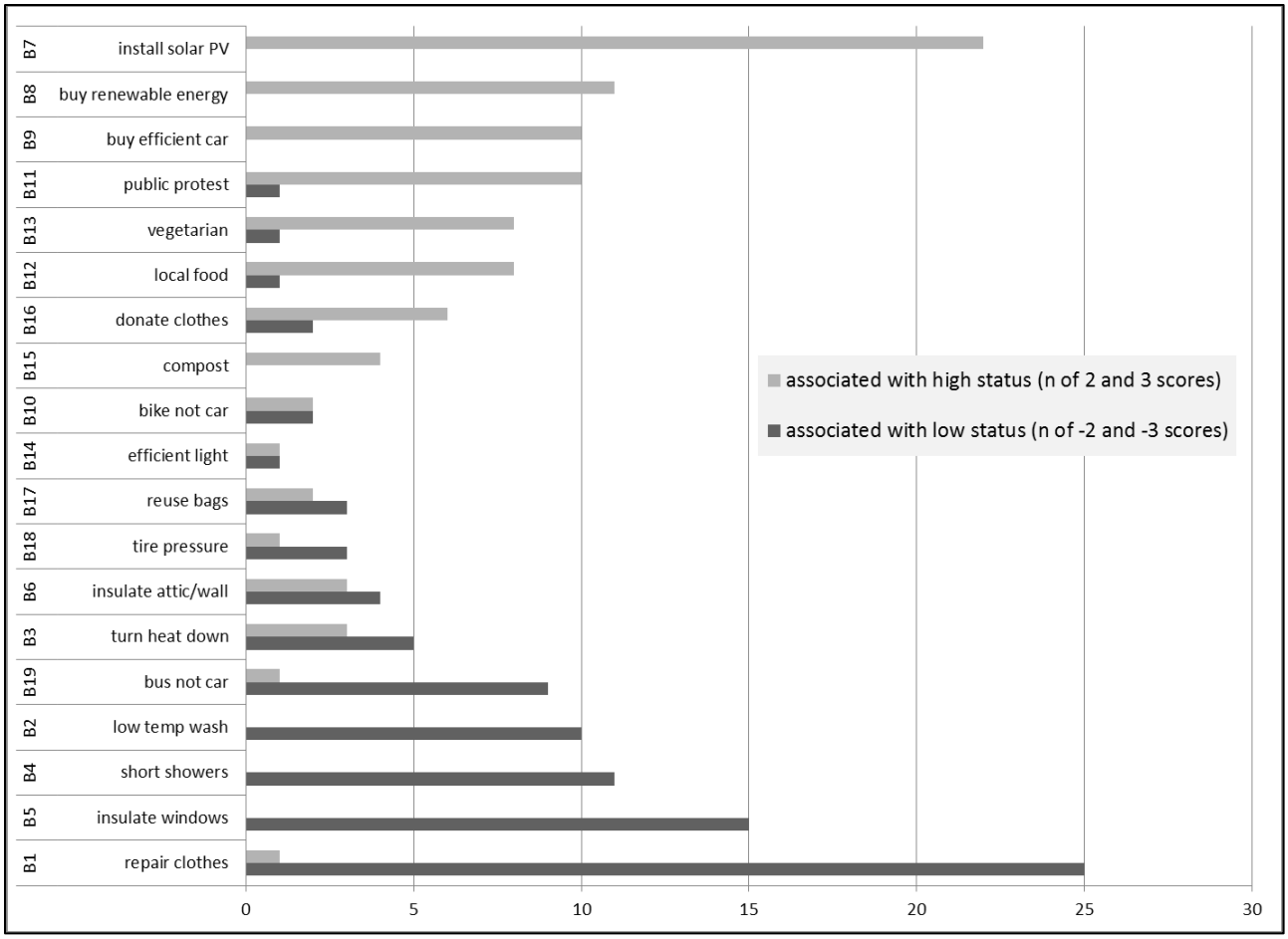


Figure 4. Non-Environmental Sample Q-Sort Counts for High Status and Low Status Scores

The combined average rating for *install solar panels* is 2.40, with the non-environmental group rating this behavior 2.13 and the environmental group a significantly higher score of 2.68. This behavior shows the highest score from both sample groups. However, a greater proportion of environmental participants (97%, N=30) place this behavior as being associated with high status (scores of 2 or 3) than non-environmental participants (71%, N=22). In fact, only one environmental participant (3%) gives this behavior a score lower than 2.

The composite mean score for *buy a fuel efficient car* is 1.29, receiving a score of 0.94 from the non-environmental participants and a significantly higher rating of 1.65 by the environmental sample. Given that the same percentage (6.5%, N=2 for each group) of participants from both sample groups select *buy a fuel efficient car* as being the most associated with high status (score of 3), the higher average score from the environmental group is explained by the larger proportion of environmental participants that rating this behavior in the top two levels (score of 2 or 3). A total of 71% (N=22) of the environmental group place *buy a fuel efficient car* as high status (score of 2 or 3); while less than half of that amount (32%, N=10) do so from the non-environmental group. Additionally, twice as many non-environmental participants (26%, N=8) as environmental participants (13%, N=4) list this behavior as status-neutral (score of 0), ultimately lowering the non-environmental group's average score.

Significantly Higher Averages: Non-Environmental Group

In contrast with the environmental sample, non-environmental respondents provide significantly higher average scores for the following behaviors: *eat vegetarian food instead of meat*, *composting kitchen waste*, and *use the bus instead of a car for short journeys*. Therefore, non-environmental environmental participants think these behaviors are more closely related to high status than environmental participants.

Only the scoring for *compost kitchen waste* exhibits a sign difference (i.e. positive or

negative) between groups. In other words, the environmental and non-environmental samples disagree on whether *compost kitchen waste* is related to high status or low status. Specifically, the environmental sample rates this behavior negatively with a score -0.03, indicating lower (though close to neutral) status, while the non-environmental gives it a positive score of 0.45, indicating higher status.

The combined average scoring for *eat vegetarian food instead of meat* is 0.60, with the environmental group giving it a score of 0.39 and the non-environmental sample giving it a significantly higher score of 0.81. This difference is due to a greater percentage (26%, N=8) of non-environmental participants rating eating vegetarian food instead of meat as high status (scores of 2 or 3) compared to environmental respondents (3%, N=1). Furthermore, this behavior is most often placed as neutral by the environmental group, with 65% (N=20) of respondents giving it a score of 0, whereas only 35% (N=11) of non-environmental respondents do so.

The total average scoring for *compost kitchen waste* is 0.21, with environmental participants providing a rating of -0.03 and non-environmental respondents granting it a significantly score of 0.45. More than double the amount of non-environmental participants (13%, N=4) give this behavior a score of 2 or 3 compared to the environmental participants (6%, N=2). In fact, no non-environmental respondents give this behavior a score of less than -1. Moreover, *compost kitchen waste* exhibits the largest variance between sample groups regarding the difficulty of placing it on the low status – high status scale. Only 3% (N=1) of non-environmental participants think this behavior was hard to place compared to 23% (N=7) of environmentalists. The increased difficulty felt by the environmental sample group in rating this behavior may relate to a significantly higher proportion (52%, N=16) of environmental respondents placing this behavior as neutral relative to non-environmental respondents (32%,

N=10).

The total average scoring for *use the bus instead of a car for short journeys* is -1.29, receiving a -1.71 by the environmental respondents and a significantly higher mark of -0.87 by non-environmental sample. A marginal proportion of participants from both sample (0% environmental, N=0; vs 3% non-environmental, N=1) groups place taking the bus in the high status realm (scores of 2 or 3). Also, although more non-environmentalists (32%, N=10) than environmentalists (6%, N=2) place this behavior as neutral (score of 0), more than twice the number of environmental participants give it a low status rating of -2 or -3 (61% environmental, N=19 vs 29% non-environmental, N=9).

QUALITATIVE DESCRIPTION OF FACTORS INDICATING STATUS

Qualitative results provided insights into how and why participants associated different behaviors with high and low status. Ultimately, there are only minor differences in the way respondents described their reasoning for ranking a behavior high or low status. The two main factors influencing whether or not a behavior is associated with high status or low status are (i) the motivation behind the behavior and (ii) observability.

For both sample groups, the concept of necessity, which relates to the motivation for the behavior, is noted most for *repair clothes instead of buying new ones* and *put plastic insulation on windows.* Regarding these two behaviors, one participant mentioned, “Lower status people don’t have enough money to not do these things.” Another respondent commented that the people who engage in this behavior do so because they “don’t have the means to do otherwise”. Furthermore, *repair clothes instead of buying new ones* and *put plastic insulation on windows* are among the behaviors most associated with low status from both environmental and non-environmental respondents. Therefore, behaviors that are motivated by necessity, rather than

choice, appear to be associated with low status.

Observability is cited most for *install solar panels on roof* and *buy a fuel efficient car*. One respondent stated, "Solar panels and fuel efficient car are badges of public display." Another respondent stated that these two behaviors are "highly visible and relate to making a statement." Interestingly, these behaviors rank as the two behaviors most associated with high status. As a result, behaviors deemed as most visible appear to be associated with high status. According to the participants, observable behavior relates to high status because higher status individuals want to communicate their status to others.

GENERAL DISCUSSION

In this study, subjects from two different social groups ranked 19 behaviors on a bipolar scale based on whether they perceived the behavior to be associated with a high status or low status. Interestingly, only 6 behaviors showed significant differences in average status ratings between sample groups. Specifically, the environmental group provided higher status ratings for *install attic/wall insulation, install solar panels*, and *buy a fuel efficient car*. However, both sample groups mentioned cost as a determining factor related to associating these behaviors with high status. Contrastingly, the three behaviors with higher averages from the non-environmental sample were *eat vegetarian food instead of meat*, *compost kitchen waste*, and *use the bus instead of a car for short journeys*. Both sample groups attributed *eating vegetarian food instead of meat* and *composting kitchen water* with having more education and free time, thereby indicating high status.

Somewhat surprisingly, the environmental sample rated costly, consumption-intensive behaviors with higher initial costs (e.g. buying a fuel efficient car, solar panels, and attic/wall insulation) as high status, while the non-environmental group generally rated consumption-reducing behaviors with lower initial costs (e.g. eating a vegetarian diet, composting, and riding

the bus instead of a car) as high status. These findings run counter to our predictions that the non-environmental sample would assign higher status to more economically costly behaviors that signal wealth, while the environmental sample would be more likely to acquaint higher status with behaviors that involve a bigger personal sacrifice in terms of time, commitment, or physical energy.

Accordingly, it is important to note assumptions that were made about what constitutes as costly behavior. In this study, costly behaviors were defined in terms of economics as this was thought to be a more straightforward way to measure cost. However, differences exist between high up-front costs that lead to higher long-term savings (e.g. installing solar panels) and low up-front costs that lead to lower, more direct savings (e.g. repairing clothes). In addition, there may be variation in how people perceived the convenience, time, energy, and commitment costs associated with particular behaviors (i.e. our hypothesis for the environmental group). This variation in how individuals understand "costs" may provide one explanation for these findings.

In addition to the aforementioned unexpected results, only six of 19 behaviors showed significant differences between the groups and the two sample groups did not actually define status as differently as was expected. The two main factors influencing whether or not a behavior is associated with high status or low status were (i) the motivation behind the behavior and (ii) observability. The importance of both of these factors can be explained using the costly signaling framework.

Since group contributions are evaluated as the *relative* cost to the individual, costly signaling theory suggests that the motivation for a behavior indicates the true costs incurred by the individual (Bliege & Smite, 2005; Willer, 2009). For example, whether a behavior is done by choice or by necessity influences the perceived group motivation of the actor. For instance, if an

individual engages in behaviors due to low income, then engaging in this behavior is not costly to the individual. The lack of alternatives indicates that the actor is not sacrificing anything because they are not voluntarily giving up a better option. The results from this study seem to support this reasoning.

With regards to observability, since costly signaling involves communicating information that is difficult to perceive directly, signals from behaviors must be sent from an actor and appropriately observed by the receiver for a successful exchange of information. In other words, in order to attain status, individuals must engage in observable behaviors to effective signal their ability to incur cost. Again, the findings of this study agree with this theory.

Another explanation for these results is that individuals in each group did not differ much in the ways they interpret signals associated with environmentally-friendly behaviors. Given that research has indicated that some environmentally-friendly behaviors are less stigmatized than 15 years ago (Welte & Anastasio, 2010), it may be that other groups or subcultures have also adopted environmentally-friendly views. Similarly, the signals associated with these behaviors could be a part of a larger cultural construct that is shared by both groups - at least in Central Ohio.

Likewise, the lack of variation between groups with regards to status perception can be attributed to respondents being a part of more than one social group. Generally, people do not belong to just one social group (Rocca & Brewer, 2002; Lickel et al., 2000). Even though we may affiliate ourselves with a particular group, this does not mean that we do not interact with people outside of this group and adopt their values and norms as well.

Another explanation may relate to our sample and sampling methods. It's possible that the samples used didn't capture the real differences between the two groups, suggesting a need

for an even more diverse sample. Also, the use of snowball sampling may have skewed the non-environmental sample. There was some indication that participants from the business sample were referring colleagues who they knew were concerned about the environment. As a result, some of the non-environmental sample may have been more environmentally-oriented than their coworkers, and thus felt the need to be even more environmentally-friendly in their responses. Future studies should avoid snowball sampling and focus on utilizing a survey-based approach to assessing participants' environmental value orientation in order to control for environmentally-oriented individuals.

More broadly, these results highlight the importance of contextual information in perceiving status related to environmentally-friendly behaviors. With insufficient contextual information about the behavior, an observer may compensate for the inadequate information by assuming the presence of other qualities related to the original behavior. This leads to a greater room for error and inadequately status judgments. For example, non-environmental participants may have correlated behaviors that often require additional knowledge or awareness about an issue (e.g. composting and eating vegetarian) with other attributes such as education and availability of time. In other words, more detailed information is needed to really understand how respondents are interpreting the signals associated with each behavior. Future research should control for a variety of contextual variables, such as motivation, convenience, infrastructure, and location, to assess the effect that each type of contextual information may have on status perception.

Another possible explanation as to why environmental participants may not have reacted to environmental motivation could be that certain behaviors might have been normalized within the environmentalist culture to the extent that environmentalists have become desensitized to the

prosocial qualities of these behaviors. In other words, environmentalists may perceive certain environmentally-friendly behaviors as expected behavior within their group, thereby dismissing the potential to distinguishing social status through engaging in these behaviors. For example, environmental respondents may not have given *reuse bags when shopping* a high rating because it is so common of a behavior for them that it no longer possesses distinguishable characteristics of status, but rather, simply fulfills a behavioral expectation. Future studies should explore this possible phenomenon within groups.

Nonetheless, these findings provide important practical implications for promoting voluntary simplicity and reducing overconsumption. There is concern among scholars that the widespread adoption of consumption-intensive environmentally-friendly behaviors, although more resource efficient, will be insufficient for true sustainability (Jackson, 2011; Owen, 2011). For instance, there is evidence that more efficient lighting actually results in higher overall energy use because as lighting becomes cheaper people find additional uses for lighting and thus maintain or increase energy used for lighting. These "efficiency" behaviors were perceived to be associated with higher status by the environmental group. As a result, cultural evolution suggests that these behaviors are more likely to spread through the environmental community due to prestige biased cultural transmission (Henrich and Gil-White, 2001). However, if instead, consumption reducing behaviors are associated with high status - as they were for the non-environmental sample - then these behaviors would be more likely to spread among that population. Status is an important component of behavioral imitation. We copy the behaviors of high status individuals more than those of low status individuals.

Overall, there are a large number of factors that affect whether a given individual will adopt environmentally-friendly behaviors. Understanding the status signal associated with

behaviors is merely one component of understanding which behaviors are likely to be more widespread. This study adds to the large literature on understanding environmentally-friendly behavior, but there a lot more research can be done to understand how signals associated with various behaviors are perceived by different social groups and the degree to which this ultimately impacts the adoption of such behaviors.

CONCLUSION

The purpose of this study was to explore which types of behaviors are associated with high status and low status and whether or not this differed among environmental and non-environmental sample groups. According to both groups, two major factors influencing whether or not a behavior is associated with high status or low status were (i) the motivation behind a behavior and (ii) observability. Contrary to expectations, the environmental group provided higher status ratings for more costly, consumptive-intensive behaviors (i.e. buying a fuel efficient car, installing solar panels, and installing attic/wall insulation), while the non-environmental sample rated consumption-reducing behaviors (i.e. eating vegetarian food, composting, and riding the bus instead of a car). A larger and more diverse sample may be necessary to confirm these findings. Nonetheless, these results highlight the importance of contextual information in perceiving status related to environmentally-friendly behaviors. This study provides insights into an important social factor that may influence whether and how extensively behaviors spread through a population. Additionally, this study presents a case for further research to assess the specific effects of context variables on status perception.

APPENDIX

Complete Text Of Q-Sort Questions Asked

1. What comes to mind when you think about whether behaviors are associated with high status? (before sorting into three preliminary piles)
2. Is there anything else that occurred to you about how these behaviors may or may not be associated with high status? (after sorting into three preliminary piles)
3. Let's talk more about these three cards that you listed as high status. Are there particular reasons you selected those?
4. What about these three cards that you listed as low status? Are there particular reasons you chose those?
5. Which behaviors did you have the hardest time placing? What was it that made them hard to place?

Environmental Orientation Questions

Participants selected to what extent they agree with the following statements. Answer options: strongly disagree, somewhat disagree, disagree, neutral, somewhat agree, agree, strongly agree

1. I have a responsibility to protect the environment
2. I am concerned about the health of the environment

REFERENCES

Andreoni, J., & Petrie, R. (January 01, 2004). Public goods experiments without confidentiality: a glimpse into fund-raising. *The Journal of Public Economics, 88,* 7-8.

Bird, R. B., & Smith, E. A. (January 01, 2005). Signaling Theory, Strategic Interaction, and Symbolic Capital. *Current Anthropology, 46,* 2, 221-248.

Cronk, L. (January 01, 2005). The application of animal signaling theory to human phenomena: some thoughts and clarifications. *Social Science Information, 44,* 4, 603-620.

Geller, E. S. (June 06, 1989). Applied Behavior Analysis and Social Marketing: An Integration for Environmental Preservation. *Journal of Social Issues*, 45, 1, 17-36.

Goldman, I. (January 01, 1999). Q Methodology as Process and Context in Interpretivism, Communication, and Psychoanalytic Psychotherapy Research. *The Psychological Record*, 49, 4, 589.

Griskevicius, V., Tybur, J. M., & Van, B. B. (January 01, 2010). Going green to be seen: status, reputation, and conspicuous conservation. *Journal of Personality and Social Psychology,* 98, 3, 392-404.

Guagnano, G. A., Stern, P. C., & Dietz, T. (1995). Influences of attitude-behavior relationships: A natural experiment with curbside recycling. Environment & Behavior, 27, 699-718.

Guilford, T. and Stamp Dawkins, M. (1991) ‘‘Receiver Psychology and the Evolution of Animal Signals’’, *Animal Behaviour*, 42(1): 1–14.

Henrich, J., & Gil-White, F. J. (May 01, 2001). The evolution of prestige: freely conferred deference as a mechanism for enhancing the benefits of cultural transmission. *Evolution and Human Behavior,* 22, 3, 165-196.

Hines, J. M., Hungerford, H. R., & Tomera, A. N. (January 01, 1987). Analysis and Synthesis of Research on Responsible Enviromentally-friendly behavior: A Meta-Analysis. *The Journal of Environmental Education, 18,* 2, 1-8.

Huberman, B. A., Loch, C. H., & Onculer, A. (March 01, 2004). Status as a Valued Resource. *Social Psychology Quarterly, 67,* 1, 103-114.

Jackson, T. (2011). Societal transformations for a sustainable economy. *Natural Resources Forum* 35, 155-164.

Kaiser, F. G., & Shimoda, T. A. (1999). Responsibility as a predictor of ecological behavior. *Journal of Environmental Psychology*, 19, 243-253.

Karp, D. G. (1996). Values and their effect on environmentally-friendly behavior. *Environment & Behavior*, 28, 111-133.

Lickel, B., Hamilton, D. L., Wieczorkowska, G., Lewis, A., Sherman, S. J., & Uhles, A. N. (January 01, 2000). Varieties of groups and the perception of group entitativity. *Journal of Personality and Social Psychology, 78,* 2, 223-46.

Owens, S. (July 01, 2000). `Engaging the public': information and deliberation in environmental policy. *Environment & Planning* A, 32, 7.

Roccas, S., & Brewer, M. B. (January 01, 2002). Social Identity Complexity. *Personality and Social Psychology Review, 6,* 2, 88-106.

Rowe, C. (1999) ‘‘Receiver Psychology and the Evolution of Multicomponent Signals’’, *Animal Behaviour* 58: 921–31.

Sadalla, E., & Krull, J. (January 01, 1995). Self-Presentational Barriers to Resource Conservation. *Environment and Behavior,* 27, 3, 328-353.

Stern, P. C., Dietz, T., Kalof, L., & Guagnano, G. A. (1995). Values, beliefs, and environmentally-friendly action: Attitudes formation toward emergent attitude objects. *Journal of Applied Social Psychology*, 25, 1611-1636.

Van Vugt, M., Roberts, G., & Hardy, C. (September 18, 2012). Competitive altruism: a theory of

reputation-based cooperation in groups. Handbook of Evolutionary Psychology, 531-540Welte, T. H. L., & Anastasio, P. (January 01, 2010). To Conserve or Not to Conserve: Is Status the Question?. *Environment and Behavior,* 4*2,* 6, 845-863.

Willer, R. (January 01, 2009). Groups Reward Individual Sacrifice: The Status Solution to the Collective Action Problem. *American Sociological Review, 74,* 1, 23-43.